problem is increased with modern and future CMOS technologies which require a low supply voltage. As the supply voltage decreases, also the noise has to decrease. An additional difficulty with a lower supply voltage is the linearity. As the threshold and saturation voltages are consuming in the case of a low supply voltage a larger portion of the supply voltage range, the linearity is worse with lower supply voltages than with higher supply voltages. The conventional direct conversion receiver will therefore be increasingly difficult to implement in future low voltage processes.

Change(s) applied to document, /L.L./ 6/13/2011

On page 6, please amend the paragraph beginning at line ~~2~~4 as follows:

Therefore, usually the digital baseband components of a direct conversion receiver, like the DSP, are implemented using CMOS technology. The RF components of a direct conversion receiver, including the LNA, the mixers and the analog baseband signaling processing component, in contrast, are usually implemented using BiCMOS technology or other ~~analogue-oriented~~analog-oriented semiconductor processes. Thus, a complete receiver is usually implemented using at least two separate chips for RF and digital baseband, which increases the production costs.

IN THE DETAILED DESCRIPTION OF THE INVENTION

Change(s) applied to document, /S.J.W./ 6/14/2011

On page ~~6~~15, please insert the following new paragraphs prior to line ~~24~~26 as follows:

In the active mixer load circuit of Figure 5, the switching elements S1 to S4 are included in order to remove the flicker noise due to the actual active mixer load 51, T1, T2. Switching elements S1 and S4 are closed to this end alternately with switching elements S2 and S3. The control signal for switching elements S1 and S4 is denoted in Figure 5 with pch and the complementary control signal for switching elements S2 and S3 switching is denoted in Figure 5 with xpch. The switcher can be considered as modulating means or as a modulator. With such a switching operation,

IN THE SPECIFICATION:

Change(s) applied to document,
/L.L./
6/13/2011

Please amend the paragraph at page 13, line 22 as follows:

The active mixer load circuit 34 measures the current mode baseband signals Ibb+ and Ibb- output by the mixing component 33 band and keeps the output voltage at a desired value. The design and the operation of the active mixer load circuit 34 will be described in more detail further below with reference to Figure 5.

IN THE SPECIFICATION:

On page 1, prior to line 2, please add the following new heading and paragraph.

--CROSS-REFERENCE TO RELATED APPLICATION

This application is in the U.S. National Stage of International Application Number PCT/IB/2004/000164 filed January 22, 2004 published September 1, 2005 under International Publication Number WO 2005/081398 A1 in the English language.

On page 2, please amend the paragraph appearing beginning at line 16 as follows:

The LNA 11 comprises two input terminals and two ~~outputs~~output terminals. The LNA 11 amplifies received RF signals RF IN and outputs the amplified signals as voltages Urf+ and Urf-. The outputs terminals of the LNA 11 are connected to two signal input terminals of a down-conversion mixing component 23 of the Gilbert cell 22. The mixing component 23 receives via two additional input terminals alternating local oscillator signals LO+ and LO-, which enable a down-conversion of input radio frequency signals RF IN. The resulting baseband signals are output as voltages Ubb+ and Ubb- via a respective output terminal. The output of the mixing component 23 is moreover connected within the Gilbert cell 22 to a mixer load 24.

Change(s) applied to document,
/L.L./
6/13/2011

On page 4, please amend the paragraph beginning at line ~~24~~25 as follows:

When using a deep sub-micron CMOS implementation, however, the flicker noise, which is also referred to as 1/f noise as it is inversely proportional to the frequency, has to be taken into account. Flicker noise is especially a problem in second generation (2G) systems like the Global System for Mobile Communications (GSM) and, to a lesser ~~extend~~extent, as well in third generation (3G) systems. The noise